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| i2 TECHNOLOGIES US, INC.<br>ONE i2 PLACE, 11701 LUNA ROAD<br>DALLAS, TX 75234 |             |                      | MCALLISTER, STEVEN B |                  |
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**GROUP 3600**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/528,457  
Filing Date: March 17, 2000  
Appellant(s): DALAL, MUKESH

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James E. Walton  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 3/6/2006 appealing from the Office action mailed 1/27/2004.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50.

Claims 51-63 are withdrawn from consideration as not directed to the elected invention.

Claims 4, 8, 9, 16, 20, 24, 25, 32, 36, 40, and 41 have been canceled.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth

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paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters. The brief is deficient because it provides an overall description of the subject matter of the invention without specific reference to each independent claim and without reference to each claim argued separately.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

|           |                  |        |
|-----------|------------------|--------|
| 5,950,177 | LUPIEN et al     | 9-1999 |
| 5,495,412 | THEISSEN         | 2-1996 |
| 5,953,708 | MIDORIKAWA et al | 9-1999 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lupien et al (5,950, 177) in view of Thiessen (5,495,412).

Lupien et al show accessing a first optimization problem and first threshold value comprising at least one objective, comprising maximizing first party satisfaction, and one or more constraints comprising for instance stock price (see e.g., Fig. 2),. accessing a second optimization problem and second threshold value comprising at least one objective, comprising maximizing second party satisfaction, and one or more constraints comprising for instance stock price (see e.g., Fig. 3),. generating a global optimization problem using a computer system wherein the solution has a first objective value and second objective value such that the first and second values are consistent with the first constraint (e.g., stock price), the first threshold (e.g., minimum satisfaction), the second constraints (e.g., stock price) and the second threshold (e.g., minimum satisfaction).

Lupien et al do not show an option for dividing the excess satisfaction in one of the four claimed methods.

Thiessen shows dividing excess satisfaction to create equal satisfaction distribution [see e.g., Fig. 5]. It would have been obvious to one of ordinary skill in the art to modify the method of Lupien et al by dividing excess satisfaction in order to assure users of an equitable marketplace.

As to claim 18, Lupien et al show receiving the COP's from the respective parties.

As to claim 19, Lupien et al and Thiessen show constraints relating to global variables.

As to claim 21, Thiessen shows using linear programming to generate the global problem (abstract).

As to claim 22, Lupien et al show generating a global solution wherein the first objective value exceeds the first threshold and the second objective value exceeds the second threshold (e.g., satisfaction exceeds minimum satisfaction threshold of 0.1)

As to claim 23, Thiessen shows that the global solution is generated as a Pareto –optimal solution (col. 6, line 57).

As to claim 26, Lupien et al in view of Thiessen discloses iteratively accessing additional first and second values threshold values and generating an additional global solutions.

As to claim 31, Thiessen discloses mediating the negotiation substantially simultaneously with the negotiation between the parties.

As to claims 1-3, 5-7, 10, and 15, Lupien et al in view of Thiessen shows the brokerage system for accomplishing the steps of the method of claims 17-19, 21-23, 26, and 31.

As to claims 33-35, 37-39,42, and 47, Lupien et al in view of Thiessen inherently discloses software to accomplish the steps of the method of claims 17-19, 21-23, 26,

and 31 since it is disclosed that the method is accomplished via a plurality of computers and it is necessary for the computers to use such software to accomplish the method.

As to claims 11, 12, 27, 28, 43 and 44, Lupien et al in view of Thiessen discloses communicating possible alternative solutions to the parties, and receiving and applying filtering information comprising a weighted preferences approach from the parties.

Thiessen does not disclose accomplishing these steps after the computation of the global solution.

However, it would have been an obvious matter of design choice to modify the method of Thiessen by accomplishing the filtering steps after the global solution had been computed since the applicant does not state that accomplishing the filtering in this manner at this time is for any particular reason or solves a particular problem and it appears that the method would work equally well in either configuration.

As to claims 13, 14, 29, 30, 45, and 46, Thiessen discloses communicating solutions to the parties and receiving selection information.

[As to claims 14, 30, and 46 only], it does not disclose choosing the solution via an auction approach.

However, it is notoriously old and well known to use an auction to decide the owner of a particular right (in this case the right to choose the final solution). It would have been obvious to one of ordinary skill in the art to modify the method of Thiessen by

auctioning the right to select from the acceptable, optimized solutions in order to efficiently assign that right by providing it to the party that values it most highly.

Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thiessen (5,495,412) in view of Lupien et al (5,950,177).

Thiessen shows accessing a first optimization problem and a threshold value related to a first objective; a second optimization problem and a threshold value related to a second objective; using the computer generating a global solution having a first objective value and a second objective value satisfying the first and second thresholds, respectively, and where the first excess and second excess are divided with an equal distribution criteria.

Thiessen does not explicitly show the first constraint related to the first objective, the second constraint related to the second objective, or that the first and second objective values of the global solution are consistent with the first and second constraints.

Lupien et al show these elements. It would have been obvious to one of ordinary skill in the art to modify the method of Thiessen by introducing the first and second constraints and having the global solution be consistent with those constraints in order to allow a plurality of variables to be considered and satisfied at one time.

As to claim 18, Thiessen shows receiving the COP's from the respective parties.



As to claim 19, Lupien et al and Thiessen show constraints relating to global variables.

As to claim 21, Thiessen shows using linear programming to generate the global problem (abstract).

As to claim 22, Lupien et al show generating a global solution wherein the first objective value exceeds the first threshold and the second objective value exceeds the second threshold (e.g., satisfaction exceeds minimum satisfaction threshold of . 1)

As to claim 23, Thiessen shows that the global solution is generated as a Pareto-optimal solution (col. 6, line 57).

As to claim 26, Thiessen in view of Lupien et al discloses iteratively accessing additional first and second values threshold values and generating an additional global solutions.

As to claim 31, Thiessen discloses mediating the negotiation substantially simultaneously with the negotiation between the parties.

As to claims 1-3, 5-7, 10, and 15, Thiessen in view of Lupien et al shows the brokerage system for accomplishing the steps of the method of claims 17-19, 21-23, 26, and 31.

As to claims 33-35, 37-39,42, and 47, Thiessen in view of Lupien et al inherently discloses software to accomplish the steps of the method of claims 17-19, 21-23, 26, and 31 since it is disclosed that the method is accomplished via a plurality of computers and it is necessary for the computers to use such software to accomplish the method.

As to claims 11, 12, 27, 28, 43 and 44, Thiessen in view of Lupien et al discloses communicating possible alternative solutions to the parties, and receiving and applying filtering information comprising a weighted preferences approach from the parties.

Thiessen does not disclose accomplishing these steps after the computation of the global solution.

However, it would have been an obvious matter of design choice to modify the method of Thiessen by accomplishing the filtering steps after the global solution had been computed since the applicant does not state that accomplishing the filtering in this manner at this time is for any particular reason or solves a particular problem and it appears that the method would work equally well in either configuration.

As to claims 13, 14, 29, 30, 45, and 46, Thiessen in view of Lupien et al discloses communicating solutions to the parties and receiving selection information.

[As to claims 14, 30, and 46 only], it does not disclose choosing the solution via an auction approach.

However, it is notoriously old and well known to use an auction to decide the owner of a particular right (in this case the right to choose the final solution). It would

have been obvious to one of ordinary skill in the art to modify the method of Thiessen by auctioning the right to select from the acceptable, optimized solutions in order to efficiently assign that right by providing it to the party that values it most highly.

As to claim 48, 49, and 50, it is noted that Thiessen in view of Lupien et al show that the global solutions are filtered as described regarding claims 1, 17, and 33, in that they are filtered to produce only the global solutions having equal distribution of satisfaction.

#### **(10) Response to Argument**

***A. The 35 USC 103(a) rejection of claims 1-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42 and 47 over Lupien et al in view of Thiessen is proper.***

Appellant argues that the combination of Lupien in view of Thiessen fails to show dividing the excess above the threshold values such that the first excess is equal to the second excess according to an equal distribution criterion (p. 23-24 of Brief). The examiner respectfully disagrees.

Figures 2 through 3D show satisfaction density profiles representing the degree of satisfaction (represented as a number from zero to 1) the buyer or seller would have in completing the transaction for a specific condition. (For instance, in Fig. 2, the individual would have a relative satisfaction of 0.6 where the transaction is for 750

shares at 73.00). The threshold value for satisfaction in Lupien is 0.1. That is the minimum level of satisfaction at which an individual will carry out the trade.

Any excess above a satisfaction of 0.1 is excess satisfaction, since the system will automatically carry out a trade for which a user has indicated a satisfaction of 0.1. The system in determining the desirability of carrying out a particular trade between two actors creates matrices representing their satisfaction density profiles and takes the dot product of those matrices (see col. 12). The system determines and carries out trades where mutual satisfaction (defined as the product of the buyer's and seller's satisfaction values at a particular set of trade conditions) is the highest. Lupien does not show dividing the excess satisfaction between the threshold, 0.1 and the values at which the trade takes place.

Thiessen, contrary to Appellant's arguments, does show distribution of equal distribution of excess satisfaction. Figure 5 shows a graph in which the area under the curve represents possible solutions and the X and Y axes show the satisfaction of each of two parties, Blue and Green. Point B represents Blue's proposal, and the horizontal line running through it represent the threshold level of satisfaction that Blue would have at that point (see e.g., col. 15, lines 4-12). Point G and the vertical line running through it similarly represent proposal and the threshold level of satisfaction that Green would have at that point.

The shaded area MG represents the area in which solution provide both Blue and Green excess satisfaction of their proposals and related thresholds of satisfaction (see e.g., col. 15, lines 30-35).

In determining an optimal solution, Thiessen divides the excess satisfaction equally, determining a solution W. Note that the for each 1 unit of satisfaction gained for Blue, a additional unit is gained for Green (see e.g., col. 16, lines 25-37). The equal distribution of excess satisfaction is also supported in col. 4, lines 30-32.

The Appellant further argues that Lupien does not show one or more constraints (page 24, last paragraph to page 25 first full paragraph). The examiner respectfully disagrees.

Contrary to the Appellant's arguments, Lupien shows all elements except those noted in the rejection and shown by Thiessen, as noted in the rejection. Regarding the first constraints in the first optimization problem, and the second constraints in the second optimization problem, Lupien shows at least the constraints of stock price, minimum trade size (of a single trade), maximum trade size (of a single trades), and maximum total to trade (of all trades under the optimization problem).

As to price, in Fig. 3C, the satisfaction density profile shows that the user will not conduct a trade under any circumstances below a certain price of approximately 20.67 (visually estimated from the figure). This represents a constraint on the optimization problem since no trade can occur below that value. As understood by the examiner, the Appellant argues that this is not a valid constraint since it is not independent of the threshold value of a minimum satisfaction level under which trading can occur.

However, it is noted that the claims do not recite that the first and second constraints must be independent of the first and second threshold levels.

Further, Lupien shows additional constraints. Lupien shows minimum and maximum trade sizes (see "Min Size" and "Max Size" on the right hand side of Fig. 4). Figure 4 shows the user interface for entering these constraints in the construction of the optimization problem. These represent additional constraints on the problem.

Finally, Figure 4 of Lupien shows entering as a constraint on the problem the maximum total quantity to be purchased (see "Max Quantity"). This represents the maximum total number that the user wishes to buy or sell. It is further entirely independent of the threshold value of satisfaction regarding any particular trade (although, again this limitation which Appellant urges has not been claimed).

The Appellant further argues that Lupien does not show "a global solution to a global optimization problem, the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least second objective value, such that the first and second values are consistent with value the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value". The examiner respectfully disagrees.

It is not clear what aspect of the element that the Appellant believes is missing since only a blanket statement is made (see bottom of page 25 to top of page 26). As best understood, column 15, lines 16-60 show the process of generating the claimed global solution, and the resulting global solution. Further, Figures 9A-9C show the

Mutual Satisfaction Profiles which are the graphical representation of the global solution. Since the system uses all of the constraints and threshold values in calculating the solution, the values are consistent with those constraints and thresholds.

The Appellant further argues that the combination of Lupien and Thiessen is improper because it lacks motivation. The examiner respectfully disagrees.

First, Appellant states that the examiner “essentially acknowledges” that Lupien does not deal with excess satisfaction. The examiner has at no point made any explicit or inherent statement that this is the case. In fact, the examiner explicitly disagrees, noting that any satisfaction above the minimum at which the user will trade is excess satisfaction in Lupien.

Next, it is noted that the examiner has explicitly provided motivation for the combination – to “assure users of an equitable marketplace”. While neither Lupien nor Thiessen may explicitly state this motivation, it is a motivation that one that is well known to one of ordinary skill in the art.

As concrete evidence of this fact, U.S. Patent 5,938,708 to Midorikawa et al is provided. The patent, published before the time of Appellant’s application, states as an object that “market participants can be given equitable dealing opportunities” (col. 2, lines 36-40).

In conclusion, since the combination of Lupien and Thiessen show all claimed elements, and since the combination is proper and has properly supported motivation,

the rejection of 1-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42 and 47 is proper and it is requested that it affirmed.

***B. The 35 USC 103(a) rejection of claims 11, 12, 27, 28, 43 and 44 over Lupien et al in view of Thiessen and an obvious matter of design choice is proper.***

Appellants argue that Lupien in view of Thiessen and obvious design choice do not properly reject claims 11, 12, 27, 28, 43 and 44. The examiner respectfully disagrees.

Lupien in view of Thiessen show communicating the solution to the parties, receiving filtering information from the parties, and using the filtering information to determine the global solutions. The filtering step of providing the filtering information is not provided after the user's receive the solutions, however. Rather, the users provide the filtering information beforehand, concurrent with the setting up of the optimization problems (shown in Fig. 2A, comprising choosing the options to define satisfaction tradeoffs).

This portion of the filtering can be accomplished before or after the solutions are generated. While it is true as Appellant argues, that performing the actual filtering portion after the solutions are generated is not equivalent to performing some type of filtering on the inputs beforehand, it is not true that it matters when the filter terms are provided.



Once the solutions have been generated, Thiessen shows the actual filtering being applied (see e.g., Fig. 2B, "Accept or reject COMMON BASE candidate").

***C. The 35 USC 103(a) rejection of claims 13, 14, 29, 30, 45, 46, and 48-50 over Lupien et al in view of Thiessen and the old and well known prior art is proper***

As to claims 13, 29, 45 and 48-50, it is noted that the combination of Lupien et al in view of Thiessen show all elements of the claims, and that these claims were included under the heading of this rejection only inadvertently. Only claims 24, 30 and 46 contain the element treated in this rejection. Even if it were found that the rejection is improper, the examiner believes that the rejection of claims 13, 29 and 45 is still proper and should stand.

As to claims 13, 14, 29, 30, 45, 46 and 48-50, the Appellant argues that Lupien in view of Thiessen do not show "using the selection information to determine a selected global solution from among the communicated global solutions according to a selection approach". The examiner respectfully disagrees.

As shown in Fig. 2B of Thiessen, selection information regarding a solution is received from the parties (see "Nominate alternative for COMMON BASE"). This selection information is used in determining the common base. The approach used is

that if a solution representing a common base exists (see "COMMON BASE exists?"), then the solution is accepted and optimized in the "Maximize the Minimum Gain" step.

Regarding claims 14, 30, and 46, Appellant argues that the rejection in view of official notice that selecting using an auction approach is old and well known is improper. The examiner respectfully disagrees.

In addition to the showing in Lupien of using random selection as a selection method (col. 12, lines 60-64), Lupien in view of Thiessen show all elements except using an auction as a selection method. The examiner took official notice that using an auction as a selection method is old and well known.

The Appellant argues against the taking of official notice, but has not made any apparent attempt to traverse it at any point during prosecution, noting only that "there is not motivation to modify Thiessen to include these features" and noting that it is a "conclusory statement" (response of 10/30/2002, pg. 21, last paragraph; response of 7/31/2003, pg. 29, second full paragraph). The Appellant has never attempted to point out the supposed errors in the official notice, or point out why it is believed that the subject matter is not old and well known, as required by 2144.03(C).

***D. The 35 USC 103(a) rejection of claims 1-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42 and 47 over Thiessen in view of Lupien et al is proper.***

The Appellant argues that the modification of Thiessen by Lupien et al is improper because motivation is lacking. The examiner respectfully disagrees.

Thiessen deals with solving a constrained optimization problem. Thiessen shows accessing a first optimization problem corresponding to a first objective comprising maximizing satisfaction of the first party subject to a threshold value corresponding to threshold value (see minimum additional satisfaction of col. 11, lines 55-63); accessing a second optimization problem corresponding to a second objective comprising maximizing satisfaction of the second party subject to a threshold value corresponding to threshold value (see again minimum additional satisfaction of col. 11, lines 55-63); generating a global solution to the optimization problem (see solution represented on Fig. 5) comprising first and second objective values comprising satisfaction values for the first and second parties as shown in Fig. 5 wherein the first and second values represent a first and second excess, or additional satisfaction above the relative first and second minimum satisfaction thresholds.

In addition to the objective values and thresholds, Thiessen shows inputting at least one constraint (see Fig. 2A "special constraints", col. 7, lines 15-16 which states, "users may enter constraints defining relationships among various interdependent issue variables") and solving the problem consistent with these constraints.

However, since providing first and second constraints as a part of the relative first and second optimization problems is not explicitly stated, Lupien et al is used to teach this element. (It is noted that the Appellant does not dispute that Lupien teaches these elements).

Contrary to Appellants arguments, Lupien et al provide support for the motivation provided by the examiner "to allow a plurality of variables to be considered and

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satisfied at one time". In examining the shortcomings of the prior art systems, Lupien et al state: "Typically, existing crossing networks do not easily allow traders to enter combinations of orders, such as 'sell 10,000 IBM at 64 only if I can buy 20,000 DEC at 32'. ... Traders often have trading strategies such as, for example, 'buy 3,000 IBM at 33, but if I can buy 5,000, I would be prepared to pay 33 and  $\frac{1}{2}$  ', that cannot be handled by existing crossing networks." (col. 3, lines 29-37).

Lupien et al further state, "The present invention ... allows traders to input as orders a satisfaction density profile and maximum size limit which at once characterizes the trader's degree of satisfaction to trade at any and all prices and sizes, up to the aggregate (or size) limit..." (col. 3, lines 49-54).

Lupien et al explicitly acknowledge the advantage of entry of a first constraint for the first optimization problem and a second constraint for the second optimization problem (e.g., the aggregate size limits, and the minimum and maximum trade size limits for the first and second party). Accessing these constraints in combination with the functions describing satisfaction for each optimization problem allows treatment of a plurality of constraints simultaneously and allows for more complex problems to be tackled.

Since Thiessen and Lupien et al show all elements of the claim and since motivation was provided and is supported concretely by Lupien et al, the examiner believes that the rejection is proper and requests that the rejection be affirmed.

***E. The 35 USC 103(a) rejection of claims 11, 12, 27, 28, 43 and 44 over Thiessen in view of Lupien et al and an obvious matter of design choice is proper.***

Regarding Appellant's arguments that the rejection of Thiessen in view of Lupien et al and an obvious matter of design choice is improper, the examiner respectfully disagrees.

The examiner notes that the Appellant's arguments are substantially the same as those treated in Section B, above, regarding the rejection of Lupien et al in view of Thiessen and an obvious matter of design choice, and refers the reader to Section B for examiner's reply.

***F. The 35 USC 103(a) rejection of claims 13, 14, 29, 30, 45, 46, and 48-50 over Thiessen in view of Lupien et al and the old and well known prior art is proper***

Regarding Appellant's arguments that the rejection of Thiessen in view of Lupien et al and the old and well known prior art is improper, the examiner respectfully disagrees.

The examiner notes that the Appellant's arguments are substantially the same as those treated in Section C, above, regarding the rejection of Lupien et al in view of

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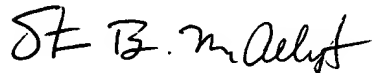
Thiessen and the old and well known prior art, and refers the reader to Section C for examiner's reply.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Steven B. McAllister

Conferees:



Alexander G. Kalinowski

Hyung S. Sough 